New epoch mooted

The possibility of a new Anthropocene geological epoch created by humans will be considered next month. **Nigel Williams** reports.

Geological records on earth are largely set in stone, or at least the distinctive fossils to be found in different layers of rock. The geological time scale also tends to span millions of years though more recently they have comprised mere millennia, with the most recent epoch, the Holocene, traced back to have begun just 11,700 years ago at the end of the last ice age. But geologists are now considering whether human activity has begun a new epoch, dubbed the Anthropocene, to mark the dramatic impact humans are having on the physical state of the planet.

Next month the International Commission on Stratigraphy, the body responsible for setting the geological time scale, will meet in Prague where it will consider proposals to include the new, man-made sub-division.

Jan Zalasiewicz and Mark Williams from the University of Leicester, Will Steffen, director of the Australian National University's climate change institute, and Paul Crutzen at Mainz University provide evidence for the scale of global change in their recent commentary in the American Chemical Society's journal, *Environmental Science & Technology*.

The researchers propose that, in just two centuries, humans have wrought such vast changes to our world that we might be ushering in a new geological time interval and alter the planet for millions of years.

The researchers argue that recent human activity, including massive population growth, sprawling megacities and increased use of fossil fuels, have changed the planet to such an extent that we are entering what they call the Anthropocene.

"It's extraordinary how a single species could have such an effect on the whole planet," says Zalasiewicz.

The notion, unsurprisingly, has sparked controversy. It was first raised by Crutzen a decade ago but there is growing interest in testing the idea. The researchers ask whether there is a worldwide signature that could be recognised long into the future as marking the start of this new epoch.

Researchers wonder whether the huge amount of concrete would leave its mark, along with vast amounts of mud and sand going into the ocean sediments from mining and agricultural activities. The growing acidification of the seas could halt the growth of corals and so reef limestone would stop being produced, providing another signal in future strata.

The Prague meeting will receive a preliminary report from the Anthropocene Working Group, a collection of experts considering the case for the introduction of the new, man-made subdivision, chaired by Zalasiewicz. It will be the start of a long process after the Geological Society of London believed there 'was merit' to the idea two years ago. But many believe it is just too soon to gauge the statigraphic impact of human activity.

"However these debates will unfold, the Anthropocene represents a new phase in the history of both humankind and of the earth, when natural forces and human forces become intertwined, so that the fate of one determines the fate of the other. Geologically, this is a remarkable episode in the history of the planet," Zalasiewicz and his colleagues write.

Impact: Humans may have sufficiently changed the global environment to leave a distinct geological footprint on earth. (Photo: Alamy.)